



Course Syllabus: Math 351 – Topics in Mathematics for Elementary Teachers II (Spring 2014)

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COURSE INFORMATION

Material Required: A variety of supplemental materials will be provided to students throughout this semester. Students will need a **three-ring binder** to keep and organize course materials, notes, and graded work. Notebook will be checked each exam time. Students will also need a **basic calculator, a ruler (with metric and standard measurement), scissors, stapler, and colored pencils.** All exams must be completed in pencil.

Textbook (Optional): Students are required to have access to *Learning Mathematics in Elementary and Middle Schools (5th or 4th ed.)*, by W.G. Cathcart, et al. (ISBN 0132420996 or 0131700596). We will discuss chapters 1-5 along from the textbook.

Course Description: Topics include ratio and proportion, percents, statistics, probability, geometry and measurement. Students should already have substantial skills in these areas. Problem solving undergirds all of these topics. The course focuses on underlying concepts and multiple techniques of explaining the concepts. **Prerequisite: Math 350 with grade of C or better.**

The goal of this course is NOT to teach simple mathematical computations but to assist students in developing an understanding of mathematics. As a future teacher students must be able to explain mathematics to their students, not just teach rote manipulations of numbers and symbols. Students should know and understand more mathematics than what they teach!

The goal of this course is beyond teaching simple mathematical computations and to assist students in developing an understanding of mathematics.

Student Learning Outcomes: Upon completion of Math 351, students will be able to

- Review, demonstrate, illustrate, & communicate concepts of fractions & decimals using manipulative & various models
- Demonstrate and illustrate ways to solve ratio, proportion, and percentage problems
- Interpret and construct statistical graphs. Use proper terminologies & strategies to solve problems in the topics of statistics & probabilities

- Identify basic geometry shapes and angles. Recognize type of transformational geometry. Identify the correct geometric formula to calculate two and three-dimensional measurements of various figures and solids. Perform measurements.
- Develop deeper understanding of mathematics thinking and connect ideas between mathematical concepts of the above topics
- Equip with various strategies and become proficient in solving problems

COURSE REQUIREMENTS

Instruction: Instruction will include lecture, demonstration and models, and hands-on activities in small and/or large group settings. Several types of manipulative will be demonstrated and used to solve problems. Cooperative Learning, inquiry learning and the use of technology will be incorporate to this class. All turned in work should be completed in pencil, please.

*****Minimum Competency Requirement***:**

Due to the important role fractions play in a child’s mathematical career, this course includes a **minimum competency requirement** over the material on the first exam (fractions). **All students in this course must achieve a grade of 75 or higher on the first exam in order to receive a passing grade (C or higher) in the course.** If the mastery level of 75% is not achieved on the first exam, a student will have one chance to re-test the material outside class to pass it. If the 75% competency is still not achieved, the last chance that a student will have is to make 75% or higher on the part of final exam over fractions. **Students will receive a failing grade of this class if he/she cannot demonstrate mastery (75% or higher) on the materials over fractions and decimals either on the first exam, the re-test, or the final exam.**

Attendance: *Attendance will be taken each class.* Students need to actively participate in class to receive credits. Every class period will be covering new material that students will be responsible for—even in the event of absence!! It is expected that students follow the guidelines set forth by the Class Attendance Policy in the current Undergraduate Catalogue. If students miss a class, please get notes from classmates and come see me for questions during office hours.

If students represent the university on an athletic team, departmental team, scholastic team, choir, or other group and must miss class, notify me in writing with the appropriate documentation within one week of the absence in order not to be counted absent. Arrangements for make-up work will be made at that time.

Excessive Absences: ***** Students who are absent more than 6 times, for whatever reason, are subject to the instructor dropping them from the course or receiving a failing grade from this class.***** Six absences in this course constitute missing 20% of the course, which is a very large fraction of material for a student to miss. Any student who is close to this number of absences should come to the instructor before they accumulate six absences in the course. I will NOT automatically drop students from the course. Therefore, if students intend to drop the course, students will need to follow the drop procedures of the school. If I intend to drop students from the course, students will receive an email from me at the address students have given me on my student information sheet.

Quizzes: Both individual and group quizzes will be given in class and the grade will be counted toward students’ daily grade. Since regular attendance is expected, **NO make-up quizzes will be given.** This class covers a variety of important topics that there is not a “good” time to miss a class. Each quiz will be over material to be emphasized on exams. Quizzes will average into students’ daily grade.

Homework: Homework will be assigned most class periods. **It is extremely important for students to work all assignments in order to be prepared for the exams.** Students can work together with classmates when trying to figure out how to do the problems. Please include classmate(s)' name(s) on the top of students' paper if students have worked with another students for an assignment. **Late work is not typically accepted and will be graded with reduced credits. Assignments that are turned in a week passed the due date will receive a zero for the grade.**

Binder: All course materials, notes, activities, assignments, projects, and reflections should be organized in a 3 ring binder. Binder will be picked up for grading each time when students take an exam.

Activities & Projects: Activities or projects will be assigned for students to work on outside of class periodically. These activities or projects will vary in their scope and should be completed neatly and punctually. An Activity or project is typically counted as twice a homework grade. Please follow the instructions for each activity or project closely and turn in quality work that reflects students' future profession as a teacher.

Exams: There will be three exams which consist of a variety of problems and short answer questions. Partial credit may be given on exams IF all work is neatly shown with clear steps. When pictures are drawn to answer a question, figures need to be clearly labeled and easily understood. Explanations should be explicit and understandable to the audience given. Items should NOT need interpretation if full credit is to be given. **Replacing a Low Test Grade: No make-up exams will be given without prior notice of a university excused absence***. At times throughout the semester, emergency situations may arise that affect a student's performance on an exam or even prevent a student from attending on an exam day. Students can replace the lowest exam grade with their grade on the corresponding portion of the final exam, provided the grade on that section of the final exam is higher. This provision will only be applied to ONE exam, so students should make every effort to be present and well-prepared for all exams.

Test dates are tentative and will be announced in class.

* University Authorized Excuses: 1) Participation in a required/authorized university activity; 2) Verified illness; 3) Death in a student's immediate family; 4) Obligation of a student at legal proceedings in fulfilling responsibility as a citizen; and others determined by individual faculty to be excusable (e.g., elective University activities, etc.)

Final Exam: Final exam is a comprehensive and will take place **Wednesday, May 7, from 5:30 – 7:30 p.m.** Do not expect a makeup exam for the final exam.

GRADING

Attendance, Participation, & Quizzes	5 %
Homework, Activities, & Projects	20 %
Exams	50 %
<u>Comprehensive Final Exam</u>	<u>25 %</u>
Total	100 %

Grade: A = 90-100, B = 80-89, C = 70-79, D = 60-69, F = 59 or below

TECHNOLOGY REQUIREMENTS

Technology Requirements: A basic scientific calculator is recommended for this class. Students need to check their e-mail regularly with the address that they have provided to the instructor for class announcement. Access of computer with internet along with MS office software and a printer will be needed for some of the class projects.

COMMUNICATION AND SUPPORT

Interaction with Instructor Statement: It is important that students are actively engaged in class activities. Questions are welcome in the classroom. Students are welcome to schedule with instructors for extra help outside classroom during office hours.

Getting Help Outside of Office Hours: Students are encouraged to study and work in group. In addition, the free tutoring on campus and from online is also highly recommended. **Math Skills Center** is located in Binnion 328, is open **Monday and Wednesday from 8am – 8pm, Tuesday and Thursday from 8am – 6pm, and Friday from 8am – 12pm.** The **Mach III/TRIO Program** is available for students who qualify for additional resources, such as private tutoring. In order to qualify, students must meet certain conditions, such as being a first-generation college student. For more information, contact Ronnie Brooks at 903-886-5833 or in the Halladay Student Services building, Room 301.

Student Health Services are located at Henderson Hall (Corner of Lee St. and Monroe St.). It offers health care to the student body of Texas A&M University – Commerce. It provides primary health care services including treatment of illness, injury, and women's health. **Tel:** (903) 886-5853.

University Police Department is located at Henderson Hall. For Emergency, please call: 911
For Non-Emergency, please call: 903.886.5868

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Course Specific Procedures

Academic Integrity: While majority of students are honest in doing their school work. However, due to recent cheating events, action must be taken to protect the academic integrity of classrooms. **There is a NO TOLERANCE policy for cheating and if a student is caught cheating, he/she will either get a zero for the test or fail this course.** Cheating in this course is defined as the following:

- Giving or receiving answers during an exam or quiz.
- Viewing the exam or quiz answers of nearby classmates.
- Having notes/practice work available during quizzes or tests.
- Possession or access to test items before the test is given.
- Deception in getting an excused absence to obtain the undeserved opportunity to make-up work.
- Use of cell phones or text messaging technology during exams or quizzes. **Students may NOT use the calculator on their cell phones or any other similar electronic devices (such as I-Pods, I-Touch, etc.). IF ONE OF THESE DEVICES IS AVAILABLE, IN ANY WAY, DURING AN EXAM OR QUIZ, THE STUDENT WILL BE GIVEN AN AUTOMATIC “0” ON THE ASSIGNMENT.**
- Improper citations in written works, or using another person's ideas and words as students own without giving proper credit.

- **Any** method, no matter how well rationalized or accepted, which improves a person's grade by any means other than study and skillful performances on exams and/or other assignments.

Students found guilty of an act of academic dishonesty in this course will be subject to receiving an "F" in this course.

Classroom Behavior: Appropriate classroom behavior is required to attend this class. All cell phones and electronic devices must be put on silent or turned off during class. NOTE: THIS INCLUDES BLUETOOTH AND OTHER DEVICES THAT ARE PLACED IN THE EAR. Phones and electronics are distractions for instructor and the other students in the class. All people will be treated with respect and talking that disrupt the class is not allowed. If disruptions occur during class time, a student will be asked to leave class and will earn a zero on any applicable grades for that class period. Serial disrupters will be asked to withdraw from this class.

Early Intervention for First Year Students: Early intervention for freshmen is designed to communicate the University's interest in their success and a willingness to participate fully to help students accomplish their academic objectives. Grades for students in freshmen level classes will be reported to the Registrar's Office at the end of the fifth week of class during the fall and spring semesters. The Registrar's Office will report grades to students, Advising Services, Academic Departments (faculty advisors) and mentors. This procedure will allow students to be knowledgeable about their academic progress early in the semester. The university, through Advising Services, faculty advisors and mentors, will take steps to assist students who may be experiencing difficulty to focus on improvement and course completion. Grade reports will be mailed by the end of the sixth week of the semester. University Specific Procedures

ADA Statement, Students with Disabilities: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If students have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services, Texas A&M University-Commerce, Gee Library-Room 132, Phone (903) 886-5150 or (903) 886-5835, Fax (903) 468-8148,
StudentDisabilityServices@tamuc.edu

Student Conduct: *** "All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment." (Student's Guide Handbook, Policies and Procedures, Conduct.) Rude and/or disruptive behavior will not be tolerated. No electronic devices (except calculators) are allowed during class time. ***

*** By Remaining Enrolled In This Course, All Students

Agree To Abide By the Policies Of This Class, As Stated In The Syllabus ***

COURSE OUTLINE

Exam 1: (Competency Exam) Review for Fractions

Introduction of Fractions

Use Fraction Sense to Solve Problems

Use Line, Area, and Set Models to Represent Fractions

Add and Subtract Fraction with Line, Area, and Set Models

Subtract mixed fractions with 4 Strategies:

1) Exchange from the Whole, 2) Improper Fractions, 3) Compensation, 4) Adding up

Multiply Fractions using Repeated Additions and Rectangular Area Models

Divide Fractions without Invert and Multiply

Problem Solving with Fractions

Exam 2: Review for Decimal Numbers, Introducing Ratio, Proportion, and Percentage

Introduction of Decimals Numbers, Use Area Model to Represent Decimal Numbers

Convert Decimal to Fractions, Write Decimal in Expanded Form, in Words, and Scientific Notation

Round Decimal to Specified Place Values

Demonstrate Addition and Subtraction of Fractions with Base 10 Blocks

Explain in Words and Demonstrate How to Multiple and Divide Decimals

Explain and Demonstrate Why the Steps to Multiple and Divide Decimals Works

Define Ratio and Proportion. Use Manipulative to demonstrate Ratio

Problem Solving with Ratio and Proportion

Define Percentage. Use Area Model to Demonstrate Percentage

Demonstrate how Percentage relates to Decimal Numbers and Fractions

Use Mental Math to Solve Percentage Problems

Problem Solving with Percentage

Exam 3: Probability, Statistics, and Geometry

Problem Solving with Various Probabilities

Interpret Statistical Charts and Graphs to Solve Problems

Using Given Data, Construct Pictographs, Bar Graphs, Line Graphs, Pie Charts, Line Plots, Stem and Leaf Plots, Frequency Tables, Histograms, and Box-and-Whisker Plots

Define Selected Geometry Terms and be able to Identify them

Perform Measurements for Length and Angles

Convert Measurements to their Equivalent

Find Degrees of Selected Angles Using Properties of Angles

Define various Shapes, Identify their Properties, Be able to Construct Them.

Perform Transformation and Tessellation